Bell County Coal Corporation

KPDES Coal General Permit HQAA Application Attachments for KDNR #807-0358

Attachment II.1.A:

Existing treatment facilities, such as existing ponds and municipal systems, were considered. The nearest existing pond is located in Coppers Fork of Hignite Creek which is over 3,800 feet horizontally and approximately 640 feet vertically lower from the location of the proposed sediment ponds. A pumping system capable of handling the peak discharge during a 25 year/24 hour storm from the nine dugout ponds, which is 696.12 cubic feet per second, or 312,439.54 gallons per minute, would cost over $1.0 million. Also, the pond in Coppers Fork is currently designed to its maximum capacity for treating sediment. Pumping and/or trucking the effluent to a municipal treatment system were considered. The nearest WWTP is the City of Middlesboro. The nearest connection to this system is near the junction of KY 74 and KY 441, approximately 18,000 feet away. At an estimated cost of $225/ft. including pumping stations, the cost to pump the effluent to this WWTP system would be over $4.0 million. With a combined peak discharge during a 25 year/24 hour storm of 696.12 cfs from the discharging dugout ponds, trucking the peak effluent from the dugout ponds to the nearest WWTP would take 16 trucks per minute hauling 20,000 gallons per load. With a cycle time estimated at 1.5 hours, the number of trucks required during peak discharge would exceed 1,440. The transportation infrastructure of KY 74 cannot sustain this volume of truck traffic. Additionally, this volume of truck traffic in this rural area with dwellings located near KY 74 would most likely result in a significant increase in traffic fatalities and pose a health and safety problem for the local residents. Construction costs estimated for the 9 discharging ponds on this operation is just over $180k. Also, the Middlesboro WWTP is not designed to treat sediment laden effluent. Additionally, sediment laden waste water would cause significant problems for the municipal collection system.

Attachment II.2.A:

Other discharge locations were considered for this operation. Other discharge locations considered were pumping into the nearest adjacent watersheds of Rockhouse Branch and Beans Fork. Hignite Creek, Rockhouse Creek, nor Beans Fork are considered Special Use Waters by KDOW. Stony Fork is listed as a 303(d) impaired water. There is no measured benefit of discharging into these adjacent watersheds. Pumping systems necessary to pump the effluent to these other watersheds for the given peak discharge volume of 312,439.54 gpm would involve constructing a pumping station for each 200 gpm of flow in addition to over 7,000 feet of large diameter gravity collection lines and over 3,200 feet of forced main. Given this steep topography, it is estimated that each pumping station would cost $54,000 and gravity collection piping would cost $150/foot and force main would cost $60/foot. With the given peak discharge, the number of pumping stations, at 200 gpm each, would exceed 1,562 or $84,402,000. The gravity collection system would cost over $1,000,000 and the forced main would cost over $190,000. The total cost for this type of pumping system would be over $85 million. Topography and soil conditions also limit the locations of pond construction.

Attachment II.3.A

Bell County Coal Corporation will reuse approximately 10k gallons per day of disturbed surface water runoff from the ponds for fugitive dust control. During spring and fall planting seasons (Mar. 15 to June 15 and Sept. 15 to Oct. 31), the applicant reuses approximately 20k gallons per day in the hydroseeding reclamation process. With a combined peak discharge during a 25 year/24 hour storm of over 312k gpm from the discharging dugout ponds, it can be concluded that the peak discharge from these outfall

locations would far exceed the 10k gallons per day that can be reused, thus necessitating discharge. Seasonal or controlled discharge options were considered as part of this project. Due to the characteristics of the runoff from the proposed project, 696.12 c.f.s. during a peak storm of 25 year/24 hour frequency, seasonal discharge is not considered to be a reasonable alternative. The dugout ponds are designed for controlled discharge. The peak effluent during a 25 year/24 hour storm is designed not to exceed 10% over the pre-mining peak effluent.

Attachment II.4.A:

Alternative processes and treatment options considered include clarifiers, filters, anoxic limestone drains, successive alkalinity-producing systems, limestone sand dosing, limestone channels, limestone diversion wells, package treatment plant and constructed wetlands. Clarifiers and filters were eliminated due to construction, operations and maintenance costs , estimated to be 1 to 1.5 million dollars for construction and 0.25 to 0.5 million dollars per year for operations and maintenance, far exceeding pond construction and maintenance costs. Also, neither of these processes performs the flood prevention function of the pond. ALDs, SAPs, limestone sand dosing, limestone channels, limestone diversion wells are designed for Acid Mine Drainage treatment only, which this site does not exhibit and do not perform the functions of the drainage ponds, which are sediment retention and flood prevention. Also, the cost of construction, estimated to be $250,000 each and maintenance costs of $100,000 per year, far exceed the cost of construction and maintenance of pond. A small package treatment plant was considered, but at an estimated cost of construction of approximately $2 million with operations and maintenance costs of $0.5 million to $0.75 million, was eliminated due to excessive cost. Constructed wetlands were considered, but eliminated due to topography and inability to perform the functions of the drainage ponds. The cost to construct wetlands would exceed $0.5 million dollars and operations and maintenance costs are estimated to be $100,000 to $200,000 per year, exceeding the cost of pond construction and maintenance.

Attachment II.5.A:

Both on-site disposal into the soil and subsurface disposal into subsurface geologic formations and abandoned underground mines were evaluated. Soil information from the USDA was evaluated to determine if any soils in the area were suitable for waste water disposal in accordance with Kentucky Health Department standards. No soils in the area were suitable for waste water disposal. The Kayjay and Fork Ridge, USGS Quadrangle was investigated for potential geologic formations suitable for subsurface injection. No formations with suitable porosity and permeability were indicated. Also, the fresh water zone is approximately 800 feet deep in valley floor areas with most residents in the area utilizing the stress-relief fracture aquifer system. Injection of waste water into this zone would adversely impact the health of local residents and would not be in accordance with EPA injection wells regulations.

Attachment II.6.A:

Other alternatives not previously discussed but evaluated, included a no-action alternative, commercial marketing of wastewater, natural evaporation, land application, and incineration. Given the abundance of water sources in this area, the annual rainfall rates of 40-50 inches per year and no known demand for this type of wastewater, this alternative was not considered reasonable for the amount of wastewater with these characteristics. With annual rainfall rate of 40-50 inches per year and a evaporation rate of approximately 30-36 inches per year for this region, natural evaporation would

result in a natural surplus of water. Also, the topography of the area is not suitable for large enough evaporation ponds to increase evaporation rates. A land application alternative was evaluated, but considered to be an unpractical alternative due to the annual rainfall rate and evapotranspiration rate of vegetation in the region. The incineration alternative was considered. Incineration would involve vaporizing the wastewater through introduction of heat energy. Given that it takes 960 Btu of energy to turn 1 pound of water into steam and there are 8.84 lbs of in each gallon of water. With a peak discharge of over 449 million gallons per day, it would take 3.8128×10^{12} Btu to incinerate the wastewater. At an estimated energy cost of $2.50 per 10,000 Btu, the amount of energy would cost over $954 million per day, which is far greater than the cost to construct sediment ponds.

When evaluating the alternatives considered above in sections 1-5, versus the projected amount of lowering in water quality, no other cost effective alternative could be found to construction of ponds and acceptance of the proposed water quality limits. The no action alternative was considered and given the impacts to the local economy of Bell County, loss of 30 local jobs and approximately $700,000 in annual severance taxes returned to Bell County.

Attachment III.1.A

Positive and beneficial effects of this facility on the existing environment and public health include:

A. An increase in employment in Bell County, Kentucky.
B. An increase in tax revenues.
C. Reclamation of previous disturbances. The proposed project area has been entirely disturbed by numerous previous disturbances including pre-law mining on the numerous existing benches estimated to be approximately 52.31 acres, which also includes existing access roads within the permit boundary of the proposes project area. There are also extensive previous logging, pre-law mining and oil/gas disturbances, in these watersheds estimated to be over 100 acres. Runoff from these existing disturbances is currently entering the receiving streams mostly unabated, unregulated and is not being monitored. This project will treat surface runoff from all of these existing disturbances and the post mining land use will result in a decrease in uncontrolled surface runoff and an increase in forested lands. As the result of this project all of the runoff from disturbances in this watershed will be treated and monitored.
D. This project will eliminate substandard discharge from 52.31 acres of previously disturbed, pre-law mining areas located on the existing mine benches. These disturbances were mined pre-law with little to no reclamation. Natural vegetation has partially reclaimed these areas. The proposed project will involve re-mining of these areas and reclaiming them to current regulatory standards with very little erosion or substandard water quality runoff. Existing logging operations within the mining area above the Hignite seam, have also created erosion which will be better managed by treating the runoff.

Negative effects to the environment and public health include:

A. Temporary increase in traffic locally.
B. Temporary aesthetic impacts due to removal of vegetation, excavation and backfilling.
C. Temporary minor ground vibrations and air blast due to blasting.
D. Temporary increase in fugitive dust and noise.

Attachment III.2.A

Approximately 30 people will be directly employed by this project and another 75 are estimated to be indirectly employed. Approximately 90% will be residents of Kentucky. U.S. Bureau of Labor

statistics indicate that Bell County, Kentucky had an unemployment rate of 9.6% in May of 2008 compared to 6.2 percent for the Commonwealth of Kentucky. The number of persons below the poverty level in Bell County, as reported in 2004, was 28.8% as compared to 5.6% for the Commonwealth of Kentucky. Direct mining employment for Bell County in 2006 was 1,038 and the miners as a percent of total employment in the county is 10.7. The mining wages paid in Bell County for 2006 were over $46.5 million. Mining wages accounted for 18% of the total wages in Bell County in 2006 compared to 10.7% of the total employment, meaning that the mining wages are much higher than the average wages for the county. The direct and indirect employment by this project is estimated to decrease the unemployment rate by 1.1% to 8.5%. Increases in employment and subsequent decreases in unemployment will be a positive impact the reduction the loss of population and maintaining of cultural heritage in Bell County. It will provide a higher standard of living in Bell County through better ambulance, police, fire protection, education, transportation, utilities and increased wages. It will also have a positive impact by providing infrastructure for Bell County and surrounding area.

Attachment III.3.A

Since this application is for an original permit, the estimated 30 employees will be new jobs for this area. Currently there are approximately 9,525 jobs in Bell County with 1,038 being direct mining jobs. The direct employment of 30 new mining jobs would increase the number of mining jobs by 2.9%. The additional 75 indirect jobs would increase the mining jobs by 10.1%. The direct and indirect employment by this project will decrease the unemployment rate from 1.1% to 8.5%.

Attachment III.4.A

The total revenue generated from this operation is estimated to be over $30 million. The severance tax rate for coal companies is approximately 4.5 percent and it is estimated that this project area will generate approximately $1.4 million in severance taxes for the Commonwealth of Kentucky. The post-mining land use will also increase the property values by improving accessibility and usable land after mining. Indirect employment due to related goods and services is estimated to be 75.

Attachment III.5.A

Operation of this mine will allow local residents to remain employed in their home county, thus maintaining their cultural heritage and reduce travel costs. Increases and continuation of community services will also be a benefit of the project due to increases and continuation of severance tax payments, employment of local citizens of Bell County. Total revenue from this operation is estimated to be $30 million and the estimated wages from the direct employment of 30 people is estimated to be over $1.8 million annually. The estimated annual wages for the 75 indirect employees is estimated to be over $2.7 million. Of the $1.4 million in coal severance taxes mentioned in Attachment III.4.A approximately half will be returned to the area, including Bell County. These coal severance taxes could be used to subsidize and provide funding for important public services in this rural area such as ambulance service, fire protection, police protection, water and sewer projects and educational needs.

Attachment III.11.A

The 30 households with direct employment will be directly affected and the 75 households with indirect employment will be indirectly affected. The direct economic impacts for the 30 employed households

are estimated to be in excess of $1.8 million in annual payroll. The estimated annual payroll for the 75 indirectly impacted households is over $2.7 million. Social benefits include local residents being able to stay in the home community to earn a living thus preserving their culture and heritage. The unemployment rate for Bell County in May of 2008 was 9.6 percent compared to 6.2 for Kentucky. The direct and indirect employment by this project will decrease the unemployment rate by 9.2%. Therefore, continued employment of residents of Bell County is vital to the economic and social structure of this small county. The 2006 population of Bell County was 29,544, in the 2000 census it was 30,060 and the 1990 census was 31,506, indicating a downward trend in population and employment.

Attachment III.13.A

All of the 52.31 acres being proposed by this project were previously disturbed by pre-law mining. The surface runoff from the 52.31 acres of un-reclaimed mining areas currently discharges into the receiving streams untreated and unmonitored. There are also extensive previous logging disturbances estimated to be over 100 acres. As the result of this project all of the runoff from disturbances in this watershed will be treated and monitored.

Attachment III.14.A

This project will eliminate substandard discharge from 52.31 acres of previously disturbed, pre-law mining areas located on the existing mine benches. These disturbances were mined pre-law with little to no reclamation. Natural vegetation has partially reclaimed these areas. The proposed project will involve re-mining of these areas and reclaiming them to current regulatory standards with very little erosion or substandard water quality runoff. Existing logging operations within the mining area above the Hignite seam, have also created erosion which will be better managed by treating the runoff.

Attachment III.15.A

The proposed project area will generate approximately $1.4 million in severance taxes and total revenue of approximately $3.5 million dollars for the Commonwealth of Kentucky. Increases in production levels such as proposed by this project will create more jobs. Production levels in small eastern Kentucky counties like Bell County are directly related to employment rates and economic prosperity of the local governments where a significant percentage of the workforce is employed by mining. 30 direct high paying jobs will be created and an estimated 75 in indirect jobs will be created. With an increase in employment and wages, consumer confidence in Bell County will also likely increase economic growth in other sectors of business. Coal production in Bell County has declined over the last decade with production being 2.75 million in 2006, 3.86 million in 2000 and 5.12 million in 1996. With over half of the electricity in the United States being generated by coal and over 97% in Kentucky, increases in coal production will decrease the dependence on non-domestic sources of energy and lower utility costs. The median income in Bell County in 2004 was $19,057 while the average income of coal miners pay has increased to over $44,800 in 2006 for Bell County.

Attachment III.16.A

Operational efficiency increases will have a positive effect on the socioeconomic conditions of the area by:

- Remediating existing sources of pollution,

- Implementing best management practices,
- Minimizing disturbances during mining phases,
- Adhering to the contemporaneous reclamation requirements,
- Providing a higher and better post-mining land use,
- Increase wildlife habitat,
- Mitigating existing poor quality streams,
- Increasing revenues for the Commonwealth of Kentucky,
- Increasing revenues for Bell County,
- Decreasing unemployment in Bell County,
- Reduce the loss of population and maintaining of cultural heritage in Bell County,
- Providing higher standard of living in Bell County through better ambulance, police, fire protection, education, transportation, utilities and increased wages.
- Providing infrastructure for Bell County and surrounding area,
- Increasing domestic energy production for the Commonwealth of Kentucky and the US,
- Decreasing utility costs and
- Increasing consumer confidence in Bell County.